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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,039	10/21/2003	Shinichi Ooizumi	Q77809	4510

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EXAMINER

DANIELS, MATTHEW J

ART UNIT PAPER NUMBER

1732

DATE MAILED: 07/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/689,039

Applicant(s)

OOIZUMI ET AL.

Examiner

Matthew J. Daniels

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. PCT/JP00/05779 was published as WO 01/16219 on 8 March 2001, and subsequently as USPN 6559195 to Yamamoto. USPN 6559195 has been used as an English language equivalent of WO 01/16219, and portions relied upon are cited in the '195 patent. The reference WO 01/16219 is available under 35 USC 102(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1, 6, and 7** are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yamamoto (WO 01/16219 with USPN 6559195 as the English language equivalent). The term “rate”, as recited in Claim 1, is interpreted to be: a fixed ratio between two things. **As to Claim 1**, Yamamoto teaches a process of producing porous films comprising the steps of melt kneading a composition comprising a polyolefin resin (5:15-22), a thermoplastic elastomer (3:34-40) and a solvent (4:63); extruding and cooling the melt kneaded material into a sheet molding (5:22-38); rolling the sheet molding (5:31); and stretching and desolvating the rolled sheet molding (5:31-37, 5:39-56). Applicant concedes these teachings in the reference to Yamamoto on page 2 of the remarks, lines 5-8.

Yamamoto appears to be silent to a the limitation that rolling is carried out under a condition such that the sheet molding after rolling has an elastic recovery rate as calculated by the following equation (1) of 20% or less: Elastic recovery rate % = $100 * (t - t_0)/t_0$, Wherein t_0 represents a minimum clearance of a sheet rolling section in the rolling, and t represents a sheet thickness in the elastic recovery state after pressure release.

However, this aspect would have been inherent or prima facie obvious over Yamamoto's method for three reasons:

Firstly, note that the reference teaches all of the claimed ingredients, process steps, and process conditions, and thus the claimed effects and physical properties would inherently be achieved by carrying out the disclosed process. If it is Applicant's position that this would not be the case: (1) evidence would need to be presented to support that position; and (2) it would be the Examiner's position that the application contains inadequate disclosure in that there is no teaching as to how to obtain the claimed properties and effects by carrying out only these steps.

Secondly, Yamamoto teaches measurement of the shrinkage ratio, $(R) = 100 * (P_0 - P_1)/P_0$ wherein P_0 is a number of picture elements before shrinkage and P_1 is the number of picture elements after shrinkage (See 8:59-9:8). In the Examiner's interpretation, P_0 and P_1 pertain to numbers of units of area measured before and after shrinkage. Yamamoto therefore teaches it is known to measure area before and after shrinkage and to achieve shrinkage ratios or rates of as little as 9 to 10% (Table 1, column 12), and that this rate or ratio pertains to elastic recovery after pressure release.

Thirdly, Yamamoto clearly desires a low level of shrinkage and discloses minimizing heat shrinkage by thermal treatment (7:20-22) or crosslinking (5:63). The Examiner asserts that

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because Yamamoto teaches methods for minimizing shrinkage and that lower levels are generally more desirable (Table 1, column 12 and 7:27-29), that the ratio or rate of shrinkage represents a result-effective variable that the ordinary artisan would have found it prima facie obvious to optimize to the most desirable level, namely to a value of zero shrinkage, using the techniques suggested by Yamamoto. Doing so would have obviously or implicitly achieved the same recovery rate as that sought in the instant invention. **As to Claim 6**, Yamamoto teaches a composition comprising a crosslinkable, double bond-containing, thermoplastic elastomer (2:67, 3:34-40, 3:60-63, 6:1-4). **As to Claim 7**, this intended use limitation does not materially affect the claimed process, and therefore should not be given patentable weight. However, Yamamoto clearly teaches battery separators (column 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims rejections of Claims 1, 2, 6, and 7 under 35 USC 103(a) over Yamamoto are maintained, and additionally new rejections based on inherency are set forth above.

Claim rejections of Claims 3-5 set forth previously under this section over Yamamoto are withdrawn in view of the persuasive evidence which asserts that the particular apparatus results in a material difference in the process. New rejections of these claims are set forth below.

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4. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (WO 01/16219 with USPN 6559195 as the English language equivalent). Yamamoto teaches the subject matter of Claim 1 above under 35 USC 102(b), or in the alternative, under 35 USC 103(a). **As to Claim 2**, Yamamoto teaches heat pressing (9:28-29) by rolling (5:30-31), at a compression ratio of 6 or more (5:22-28, Yamamoto teaches ratios of 0.5 to 400), until a desired thickness is achieved (9:25-32) or solvent extraction is performed (4:65-67). Because Yamamoto teaches pressing until the desired thickness is achieved or the solvent is extracted, time appears to represent a result effective variable which can be optimized in order to achieve a desired thickness or level of solvent extraction. See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In particular, it would have been prima facie obvious to select a time of greater than 1 minute in order to provide crosslinking which reduces the amount of shrinkage in the final product (see 6:54-65). Alternatively, the Examiner asserts that solvent extraction and compression are not instantaneous, and combined with the compression ratios of 0.5 to 400, many values less than 1 minute would obviously provide the claimed “k” coefficient.

5. **Claims 3-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (WO 01/16219 and USPN 6559195) in view of Oizumi (JP 2000-230072). Yamamoto teaches the subject matter of Claim 1 above under 35 USC 102(b), or in the alternative under 35 USC 103(a). **As to Claims 3 and 4**, Yamamoto appears to be silent to the particular pressure roller type double belt pressing machine and one in which heat rolling and cold pressurizing are carried out within one belt pressing machine. However, Oizumi teaches in paragraph [0030] pressure type double belt pressing and successively hot rolling and cool rolling. It is unclear whether

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Oizumi teaches these steps performed “within one belt pressing machine”, however, it is the Examiner’s position that in the case that Oizumi is silent to a single belt pressing machine, that the same steps are performed by Oizumi, and that the use of a single belt would not materially change or distinguish the claimed *method* from that of Yamamoto and Oizumi.

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Oizumi into the method of Yamamoto a) in order to provide a continuous process which would operate at greater speed and efficiency, b) in view of Oizumi’s teaching of better pressability (paragraph [0030]) which would have been obviously desirable in Yamamoto’s process, and c) because Yamamoto clearly suggests a rolling process (5:31), which Oizumi’s process provides. **As to Claim 5**, Yamamoto teaches heated compression within the claimed temperature range (See melting points of 132 C and 144 C in 9:15-19 and heat pressing at 115 C in 9:29-30), and cold pressurizing at 40 C or lower (9:25-27).

Response to Arguments

6. Applicant’s arguments, see page 3, filed 2 May 2006, with respect to the rejection(s) of claim(s) 3 and 4 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Oizumi (JP 2000-230072).

7. Additional arguments filed 2 May 2006 have been fully considered but they are not persuasive. These arguments appear to be on the following grounds:

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- a) Yamamoto fails to teach the elastic recovery rate, and Applicants submit that “shrinkage rate” disclosed in Yamamoto “is not directly related” to the elastic recovery rate as claimed.
- b) “time” in Claim 2 is not a result-effective variable. The time cannot simply be based on target thickness. Additionally, Example 3 compared against Comparative Example 2 exhibits unexpected results.
- c) Applicants claim heat rolling at a temperature between 30 C and 10 C in Claim 5. Yamamoto teaches 115 C in Example 1.

8. These arguments are not persuasive for the following reasons:

- a) It is unclear how the argument that the shrinkage rate “is not directly related” to the elastic recovery rate rebuts the case made for inherency. In this action, the particular interpretations are expanded and explained more thoroughly, and a new rejection over Yamamoto under 35 USC 102(b) is made. The Examiner asserts that there is no evidence in this case that Yamamoto does not inherently provide the claimed “rate”, and the Examiner asserts that shrinkage rate is directly related to recovery rate. Additionally, Yamamoto clearly suggests to minimize the shrinkage “rate” and provides teachings to do so, and the Examiner asserts that shrinkage therefore represents a result effective variable which would be optimized to minimize shrinkage.

Applicant concedes on page 2 of the remarks, lines 5-8, that the other elements of the claim, exclusive of the elastic recovery rate, are taught in the reference to Yamamoto.

- b) The Examiner maintains that Yamamoto’s teaching of “until” at 9:29-30 suggests that the ordinary artisan optimize the time. Additionally, the Examiner asserts that the time would be optimized to provide a high level of solvent extraction, and Yamamoto clearly suggests solvent

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extraction at 4:65-67. Additionally, it should be noted that Yamamoto teaches compression ratios of Yamamoto teaches ratios of 0.5 to 400 at 5:22-28, and because solvent extraction and compression could not be performed instantaneously, the Examiner asserts that the ordinary artisan performing the process of Yamamoto would have found it obvious that the process would fulfill the limitation of Claim 2.

c) The Examiner has reconsidered the claim language. The claimed limitation is “between (the melting point of the polyolefin resin – 30°C) and (the melting temperature point of the polyolefin resin – 10°C),” The Examiner asserts that the claim limitation is formulaic in that the claimed heat rolling range is between a temperature 30 degrees below the melt temperature and a temperature 10 degrees below the melt temperature. It should be noted that if Applicant’s arguments are correct in characterizing the subject matter of Claim 5, the hot rolling temperature could be lower than the cold rolling temperature claimed in the same claim. Additionally, the language of the claim would require a range of between *the melt temperature of the polyolefin resin* and *the melt temperature of the polyolefin resin* as its bounds. The Examiner maintains his interpretation regarding the subject matter of Claim 5.

Conclusion

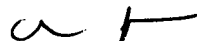
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Daniels whose telephone number is (571) 272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 5:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJD 7/13/06


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PRIMARY EXAMINER
7/14/06